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Avalanche Notes

U.S. Forest Service
Westwide Avalanche Network

APRIL 95

Weather

April snowfall over the mountain West was above normal at almost all data sites. Alyeska, AK, recorded 103% of normal and pulled off a rare six-peat -- all 6 months above normal. In the Sierra of California, Alpine Meadows received 205% of normal. Snowbird, UT, wound up with 95% of normal, but neighboring Alta got 115%. In Colorado, Berthoud Pass got 140%, and Gothic, 145%.

In Colorado, an unprecedented series of spring storms brought almost continuous snowfall from April 9 to May 31. In those 53 days, Loveland Basin ski area, 50 miles west of Denver, recorded snowfall on 50 days. Loveland's snowfall was 102" in April and 141" in May. This May total exceeds that for any Colorado data site for any month of the 94-95 winter.

Avalanche

Seven avalanche accidents were reported in April, and four of these were fatal. Here are brief accounts of the four accidents that claimed five lives:

April 2, Anaconda, MT: Two snowmobilers were playing high-mark when (stop me if you've this one) one machine got stuck high on the slope. Another snowmobiler rode up to help and the weight of two machines and people triggered a large avalanche. Witnesses found one machine but nothing else. Rescuers using probes later found both victims, a man and a woman, buried 5 feet deep. They were dead when uncovered.

April 2, Coal Bank Pass, CO: Three climbers and a dog had reached the summit of Engineer Mountain. One man was sitting on a cornice peeling an orange when the cornice collapsed. That man and another and the dog fell 1,000 feet vertical down the rugged north face of Engineer Mountain. Both men were partly buried. One man died from massive injuries, and the other suffered a severe head injury and is recovering. The dog survived.

April 19, Teton Pass, WY: A 22-year-old snowboarder was climbing the south ridge of Taylor Mountain with two friends when he collapsed a cornice. He fell into a steep chute and was swept 700 vertical feet down the mountain. His companions found no clues. They notified the local S&R team which arrived with a dog. The dog alerted, and rescuers uncovered the victim from 5 feet of snow. He had been buried for 4 hours and did not respond to resuscitation.

April 25, Pikes Peak, CO: Four back-country skiers triggered a slab avalanche about 300 feet below the 14,110-foot summit on the east face of Pikes Peak. Two men suffered minor injuries, one suffered a broken femur and pelvis, and one died from a head injury. A three-man rescue team flew by helicopter to

the summit, but this team and two of the injured skiers were forced to spend a severely cold and stormy night above 13,000 feet. They were airlifted out by helicopter the next day.

On May 9 in Glacier N.P., MT, a rotary snowplow parked on the Going-to-the-Sun highway sustained \$6,000 damage when hit by an avalanche. This could have been a tragic accident, for only an hour earlier a work crew had left this site, which previously had been thought to be safe from avalanches. Work crews frequently used the site for lunch breaks and for parking vehicles.

Eight avalanche incidents were reported in April and May, resulting in 13 people caught, 5 partly buried, 3 buried, 4 injured, and 5 killed.

Winter Summary

Table 1 lists U.S. avalanche statistics for the last 25 winters. The number of avalanches reported was a record high for the 25 years of the Westwide. All accident categories were above average. The number of people killed, 22, may reach 23 pending the recovery of the Alaska skier missing since November.

Table 2 presents snowfall totals for the winter of 1994-95. Snowfall was below average in Washington, Oregon, northern Idaho, northern Montana, and northern Colorado. Snowfall was above average in southcentral Alaska, California, southern Idaho, Utah, central and southern Colorado, and northern New Mexico. Alyeska, AK, and Alpine Meadows, CA, set 6-month snowfall records, while Alpine Meadows and in Colorado, Aspen Highlands, Aspen Mountain, and Beaver Creek all set 4-month records.

Table 3 lists avalanche totals for Westwide reporting sites for the winter of 94-95. There are some impressive numbers here.

Farewell

It's the end of an era. This is the final edition of Avalanche Notes ... at least in the present format. The reason? Budget cuts. I have been the author of Avalanche Notes for 25 years. That's a quarter century, and that's long enough. After having written more than 150 editions of this monthly newsletter, I'm retiring from the Avalanche Notes business. I will continue my career with the Colorado Avalanche Information Center and American Association of Avalanche Professionals.

Art Judson created the Westwide Snow and Avalanche Network in 1967, via the U.S. Forest Service Avalanche Research Project. His intent was to standardize data collection at sites performing avalanche forecasting and control and provide storage in a central database. He succeeded nicely, as the network grew from a handful to about 50 sites reporting on a regular basis. I took over the Westwide in 1970. Avalanche Notes has a mail list of 300, and the Westwide data have been used by hundreds (maybe thousands) for any number of purposes.

What's the future of the Westwide? I am passing the torch to new and younger leaders who will bring fresh ideas to the important job of data collection, storage, and distribution. A group of avalanche professionals in Utah will take over the Westwide starting next year. They are now seeking alternative funding to support this project, and plan on streamlining the data logging and transfer to a central computer. They will contact all data sites to maintain continuity.

What's the future of Avalanche Notes? There is every intent to continue a monthly newsletter of data and avalanche events, but in a new format. It may be a separate mailing or it may be through The Avalanche Review. Stay tuned. We will keep you informed.

My job is done, though. It's been fun, and indeed I've enjoyed serving you all these years. So long.

Knox Williams

Table 1: Annual avalanche summaries for the U.S., with 25-year average

Winter	Avalanches	---- People ----				Vehicles		Avalanche Damaged			Estimated
		Ct	PB&B	Inj	Kill	Bur	Dam	Bldgs	Lifts	Misc	Property Damage
1994-95	14,110	162	88	28	22	56	52	12	0	5	\$ 723,000
1993-94	8,419	136	60	9	13	4	2	1	0	0	255,000
1992-93	10,350	206	91	15	29	47	11	15	0	1	803,000
1991-92	5,522	155	67	20	23	13	8	0	1	2	70,000
1990-91	7,049	134	54	12	8	8	2	2	0	1	160,000
1989-90	6,122	141	58	16	8	14	8	3	0	3	150,000
1988-89	7,385	143	55	4	7	33	6	2	0	8	2,216,000
1987-88	5,338	148	50	13	8	7	5	2	0	25	650,000
1986-87	5,036	128	62	13	23	5	0	3	0	1	175,000
1985-86	7,437	102	49	11	15	18	7	6	1	3	150,000
1984-85	6,903	115	42	18	14	8	0	4	0	2	80,000
1983-84	7,161	122	42	20	14	27	7	4	0	6	140,000
1982-83	11,822	174	68	20	14	32	11	5	4	3	80,000
1981-82	10,102	212	78	16	19	77	25	10	8	8	1,700,000
1980-81	5,695	131	58	7	23	5	1	0	2	0	10,000
1979-80	10,669	136	44	9	6	34	16	7	1	19	650,000
1978-79	9,420	159	62	16	11	54	24	5	1	4	1,250,000
1977-78	11,151	155	71	16	17	19	5	5	3	2	300,000
1976-77	3,764	98	35	13	10	3	0	2	0	0	1,000
1975-76	7,905	177	81	15	17	13	6	1	1	1	100,000
1974-75	10,387	195	79	9	22	30	5	4	1	2	150,000
1973-74	11,782	159	92	13	13	54	16	11	2	7	300,000
1972-73	9,965	92	35	3	5	11	1	4	2	2	200,000
1971-72	6,975	168	63	17	5	21	4	11	2	12	300,000
1970-71	4,066	58	46	10	12	19	3	13	2	8	500,000
Average	8,181	144	61	14	14	24	9	5	1	5	444,000

Table 2: Snowfall totals (inches) for Westwide sites for 1994–95

Site	ST	Nov	Dec	Jan	Feb	Mar	Apr	Dec—Mar	% Norm	Nov—Apr	% Norm
Alyeska	AK	130	203	129	88	87	74	507	138%	711	143%
Eaglecrest	AK		78	26	35	44		183			
Alpine Meadows	CA	117	108	170	18	181	68	477	179%	662	196%
Heavenly Valley	CA	105	40	102	8	121	42	271		418	
June Mountain	CA			163	22	145		330			
Mammoth Mountain	CA		42	136	14	134		326	134%		
Squaw Valley	CA		101	215	23	210	68	549			
Sugar Bowl	CA		103	219	24	211	79	557			
Arapahoe Basin	CO		17	36	79	61	78	193	93%		
Aspen Highlands	CO	46	23	36	70	103	50	232	143%	328	
Aspen Mountain	CO		32	51	71	106		260	162%		
Bear Lake, RMNP	CO	29	22	28	48	46	73	144		246	
Beaver Creek	CO		41	58	98	96		293	141%		
Berthoud Pass	CO	46	15	52	64	71	77	202	99%	325	106%
Breckenridge	CO		18	35	67	46	66	186	82%		
Copper Mountain	CO		18	47	71	60		189	109%		
Crested Butte	CO		26	46	89	70		231	143%		
Eldora	CO		8	32	64	55		159			
Gothic	CO	76	38	56	104	118	62	316	138%	454	141%
Keystone	CO	26	14	36	65	61	66	176		268	
Monarch	CO	39	32	46	49	80	72	207	111%	318	
Purgatory	CO		30	51	42	80		203	113%		
Red Mountain Pass	CO	64	31	62	49	94		236	114%		
Steamboat	CO		56	76	57	45		234	99%		
Telluride	CO	74	20	66	50	121		257	142%		
Vail	CO	52	29	61	79	73	78	242	92%	372	
Winter Park S.A.	CO	64	29	65	76	73		243	97%		
Wolf Creek	CO	71	45	73	55	124		297	112%		
Schweitzer Basin	ID		69	46	29	40		184			
Sun Valley	ID		47	66	27	90	30	230	165%		
Big Mountain	MT		74	52	46	44		216	89%		
Big Sky	MT		56	55	24	64		199	104%		
Bridger Bowl	MT	92	54	49	22	95		220	98%		
Taos	NM		23	75	40	58		196	114%		
Mt. Hood Meadows	OR		66	82	72	54		274	84%		
Alta	UT	152	66	164	56	117	76	403	114%	631	131%
Snowbird	UT	150	59	122	48	102	66	331	100%	547	116%
Alpentel	WA		108	69	43	49		269			
Crystal Mountain 1	WA	114	72	64	47	44		227	96%		
Crystal Mountain 2	WA		74	71	45	76		266	90%		
Mt. Rainier—Paradise	WA		130	72	60	103		365	80%		
Snoqualmie Pass	WA	126	106	70	46	35		257			
Stevens Pass S.A.	WA	119	133	75	45	50		303	95%		
Stevens Pass US 2	WA	136	115	44	46			205			
Jackson Hole	WY		72	79		90		241			

Table 3: Avalanche totals for the winter of 1994-95

Site	ST	Avalanches
1. Squaw Valley	CA	1717
2. Alpine Meadows	CA	1673
3. Alta	UT	1338
4. Stevens Pass	WA	1250
5. Crystal Mountain	WA	1028
6. Snowbird	UT	925
7. Bridger Bowl	MT	642
8. Mammoth Mountain	CA	485
9. Alyeska	AK	476
10. Kirkwood Meadows	CA	431
11. Big Sky	MT	357
12. Breckenridge	CO	328
13. Loveland Pass & I70	CO	315
14. Aspen Snowmass	CO	271
15. Sugar Bowl	CA	261
16. Gothic	CO	229
17. Jackson Hole	WY	168
18. Wolf Creek Pass US160	CO	160
19. Mt. Hood Meadows	OR	156
20. Heavenly Valley	CA	151
21. Telluride	CO	143
22. Snoqualmie Pass I90	WA	136
23. Aspen Highlands	CO	128
24. Berthoud Pass	CO	119
25. Wolf Creek	CO	117
26. Stevens Pass US2	WA	114
27. Alpentel	WA	101
28. Taos	NM	98
29. Red Mountain Pass US550	CO	93
30. Arapahoe Basin	CO	91
31. June Mountain	CA	69
32. Aspen Mountain	CO	66
33. Crested Butte	CO	65
34. Eaglecrest	AK	59
35. Copper Mountain	CO	58
36. Monarch	CO	46
36. Urad-Henderson Mine	CO	46
38. White Pass	WA	41
39. Big Mountain	MT	37
40. Sun Valley	ID	35
41. Monarch Pass US50	CO	22
42. Wolf Mountain	UT	21
43. Vail	CO	14
44. Steamboat	CO	13
45. Ski Cooper	CO	7
46. McClure Pass CO133	CO	7
47. Teton Pass	WY	3

U.S. FOREST SERVICE
WESTWIDE WEATHER AND AVALANCHE NETWORK
FORT COLLINS, COLORADO

APRIL 1995
SUMMARY OF WEATHER AND SNOW CONDITIONS

AREA	SNOWFALL				WATER EQUIVALENT								SNOW DEPTH				TEMPERATURE			WIND SPEED AND DIRECTION					
	TOTAL SNOW- FALL IN.	AVG DEN	MAX		TOTAL WATER IN.	MAX 24 HR. IN.	D IN E	NUMBER OF DAYS	D A	MAX IN.	T E	MIN IN.	AVG IN.	MEAN MAX	MEAN MIN	AVG	DEGREES F	AVG FOR MO.	6 HOUR PERIODS GE 15	FASTEST HOUR 20	D A T E				
			IN	D																					
			24	A																					
CENTRAL AND SOUTHERN ROCKY MOUNTAINS																									
ARAPAHOE BASIN, COLO	78.1	.08	9	17	6.16	.82	18	16	13	7	0	90	26	65	77	32.6	11.0	21.8	14.9M	60M	26M	38	50	9	
ASPEN HIGHLANDS, CO	49.6	.10	9	26	5.01	.81	26	13	10	3	0	94	30	77	83	41.3	19.3	30.3	12.4	44	16	30	230	13	
BEAR LAKE, RMNP, CO	72.7	.08	11	30	6.09	1.00	26	19	12	3	1	70	26	41	51	34.2	23.2	28.7	--	--	--	--	--	--	
BERTHOUD PASS, COLO	77.1	.09	11	26	7.06	.90	11	16	12	7	0	--	--	--	--	--	--	--	--	--	--	--	--	--	
BRECKENRIDGE, COLO	66.0	.08	11	26	5.09	.90	26	14	10	2	0	84	26	59	68	26.7M	11.1M	18.9M	14.2M	44M	17M	--	--	--	
GOthic, COLO	62.0	.08	8	26	4.70	.75	30	13	11	2	0	83	1	70	76	36.8	18.1	27.4	--	--	--	--	--	--	
KEYSTONE, COLO	66.0	--	9	19	--	--	--	--	--	--	--	78	26	54	65	37.7	14.5	26.1	--	--	--	--	--	--	
MONARCH, COLO	72.0	.09	12	30	6.61	1.00	30	13	11	6	2	--	--	--	--	35.7	17.0	26.3	--	--	--	--	--	--	
VAIL, COLO	77.5	.08	12	26	5.90	.90	26	12	11	4	0	96	26	70	82	36.3	16.6	26.4	8.4M	1M	0M	22	190	16	

INTERMOUNTAIN

ALTA, UTAH	76.0	.09	14	9	7.03	.94	19						165	20	145	155	33.2	18.3	25.8	9.2	7	8	30	150	13
SNOWBIRD, UTAH	66.0	.10			6.97																				
SUN VALLEY, IDAHO	30.0	.10	7	15	3.00	.60	15	11	7	1	0		110	26	100	105	38.5M	15.5M	27.0M	11.8M	25M	5M	--	--	--

WEST COAST

ALPINE MEADOWS, CAL	68.0	.14	12	14	12.24	2.09	8	12	12	10	6		163	14	145	154	40.7	26.5	33.6	29.3	100	86	95	230	29
ALYESKA, ALASKA	73.8	.11	14	19	10.74	1.35	19	20	15	8	2		150	19	129	140	41.4	32.2	36.8	5.1	0	0	16	120	23
HEAVENLY VALLEY, CAL	42.6	--	9	14	--	--	--	--	--	--	--		115	16	97	106	37.9	18.3	28.1	--	--	--	--	--	--
SQUAW VALLEY, CALIF	67.6	.14	11	8	10.18	1.47	29	11	11	9	4		280	1	249	263	36.9	23.4	30.1	28.6	92	82	87	250	29
SUGAR BOWL, CALIF	79.0	--	16	13	--	--	--	--	--	--	--		297	21	271	286	37.4M	19.9M	28.6M	17.0M	62M	36M	--	--	--

-- DATA INCOMPLETE OR MISSING

M-ONE OR MORE DAYS OF RECORD MISSING-IF AVERAGE VALUE IS ENTERED, LESS THAN 10 DAYS RECORD IS MISSING

IF M IS ENTERED IN WIND SPEED COLUMN, LESS THAN 37 6-HOUR PERIODS ARE MISSING

GE--GREATER THAN OR EQUAL TO

U.S. FOREST SERVICE
WESTWIDE WEATHER AND AVALANCHE NETWORK
FORT COLLINS, COLORADO

APRIL 1995
AVALANCHE SUMMARY

AREA	TOTAL	TOTAL	DATES OF				NUMBER OF DAYS WITH		TYPE OF AVALANCHE										FRACTURE LINE HEIGHTS IN FEET			VERTICAL DESCENT IN FEET				AVALS ACROSS MAJOR ACCESS ROADS NO.
	A	A					A	S	A	N																
	V	V					R	L	T	A	SLABS				L											
	A	A					I	U	T	U	H	S														
	L	L					F	F	C	A	R	O	W													
	S	S	F	L	MAX	D	A	S	F	L	D	T	T	E	GE	GE	GE	GE	GE	GE	MAX					
	THIS	THIS	R	A	ONE	A									2	4	6	200	500	1000	FEET					
	MONTH	WINTER	S	S	DAY	T																				
	NO.	NO.	T	T	NO.	E	-----NUMBER-----										-NUMBER-			---NUMBER---						
CENTRAL AND SOUTHERN ROCKY MOUNTAINS																										
ASPEN HIGHLANDS, COL	7	128	24	24	7 24	1	0	0	7	0	5	0	2	0	0	0	0	0	0	0	0	0				
BERTHOUD PASS, COLO	11	119	12	26	6 26	3	0	2	9	0	5	6	0	8	1	0	11	6	2	2100	0					
BRECKENRIDGE, COLO	50	328	11	30	10 24	9	0	50	0	2	48	0	0	11	0	0	50	11	0	900	0					
GOthic, COLO	30	229	1	30	7 26+	8	0	0	30	0	1	0	29	0	0	0	30	27	16	1700	0					
LOVELAND PASS U.S. 6	29	315	2	27	9 12	10	0	19	10	0	24	2	3	11	0	0	29	26	5	2300	6					
URAD MINE, COLO	3	46	12	24	2 24	2	0	0	3	0	1	2	0	1	0	0	3	3	0	600	0					
WOLF CREEK, COLO	14	117	5	9	6 8	5	0	14	0	0	14	0	0	2	0	0	3	0	0	310	0					
INTERMOUNTAIN																										
ALTA, UTAH	120	1338	9	22	44 9	7	3	86	34	6	114	0	0	12	1	0	61	39	2	1200	0					
SNOWBIRD, UTAH	198	925	9	30																						
WEST COAST																										
ALPENTAL, WASH	3	101	13	14	2 13	2	0	3	0	0	3	0	0	0	0	0	3	1	0	500	0					
ALPINE MEADOWS, CAL	184	1673	3	20	101 13	9	0	179	5	0	184	0	0	6	0	0	174	35	0	700	0					
ALYESKA, ALASKA	72	476	7	28	17 28	11	0	45	27	1	14	31	26	28	7	3	72	69	46	2400	0					
HEAVENLY VALLEY, CAL	8	151	13	14	5 13	2	0	8	0	0	8	0	0	0	0	0	7	3	0	800	0					
MAMMOTH MTN, CALIF	6	485	14	14	6 14	1	0	6	0	0	6	0	0	0	0	0	4	3	0	500	0					
SQUAW VALLEY, CALIF	57	1717	3	20	18 14	6	0	56	1	0	57	0	0	9	0	0	38	1	0	700	0					
SUGAR BOWL, CALIF	11	261	9	13	6 9	2	0	11	0	1	10	0	0	0	0	0	10	-0	0	400	0					

-- = DATA INCOMPLETE OR MISSING
GE = GREATER THAN OR EQUAL TO
+ = ALSO OCCURRED ON OTHER DATES